VIII. GLOSSARY

The following terms were collected from the 2009 California Climate Change Adaptation Strategy, the Intergovernmental Panel on Climate Change Third Assessment Report (2001), the Coastal Commission's Beach Erosion and Response (BEAR) document,[23] and the California Coastal Act, unless otherwise noted. Some of these definitions are not used in the text of the report, but are included as a resource on coastal-related adaptation issues.

Aquifer: an underground layer of porous rock, sand, or other earth material containing water, into which wells may be sunk.

Armor: to fortify a topographical feature to protect it from erosion (e.g., constructing a wall to armor the base of a sea cliff).

Adaptation: Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which minimizes harm or takes advantage of beneficial opportunities.

Adaptive Capacity: The ability of a system to respond to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities, and to cope with the consequences.[24]

Adaptive Management: Adaptive management involves monitoring the results of a management decision, and updating actions as needed and as based on new information and results from the monitoring.

Baseline/Reference: The baseline (or reference) is any datum against which change is measured. It might be a "current baseline," in which case it represents observable, present-day conditions. It might also be a "future baseline", which is a projected future set of conditions excluding the driving factor of interest (e.g., how would a sector evolve without climate warming). It is critical to be aware of what change is measured against which baseline to ensure proper interpretation. Alternative interpretations of the reference conditions can give rise to multiple baselines.[25]

Beach: the expanse of sand, gravel, cobble or other loose material that extends landward from the low water line to the place where there is distinguishable change in physiographic form, or to the line of permanent vegetation. The seaward limit of a beach (unless specified otherwise) is the mean low water line.

Beach nourishment: placement of sand on a beach to form a designed structure in which an appropriate level of protection from storms is provided and an additional amount of sand (advanced fill) is installed to provide for erosion of the shore prior to the anticipated initiation of a subsequent project. The project may include dunes and/or hard structures as part of the design.

[23] Many of these definitions were extracted from: U.S. Army Corps of Engineers, 1984; Griggs et al. 1985, California Department of Boating and Waterways and San Diego Association of Governments, 1995
[24] UK CIP 2003.
[25] Moser 2008.

Bluff (or cliff): a scarp or steep face of rock, weathered rock, sediment or soil resulting from erosion, faulting, folding or excavation of the land mass (Figure 15). The cliff or bluff may be simple planar or curved surface or it may be steplike in section. For purposes of (the Statewide Interpretive Guidelines), "cliff" or "bluff" is limited to those features having vertical relief of ten feet or more and "seacliff" is a cliff whose toe is or may be subject to marine erosion.

Bluff top retreat (or cliff top retreat): the landward migration of the bluff or cliff edge, caused by marine erosion of the bluff or cliff toe and subaerial erosion of the bluff or cliff face.

Climate Change: Climate change refers to any long-term change in average climate conditions in a place or region, whether due to natural causes or as a result of human activity.

Impact Assessment: The practice of identifying and evaluating the detrimental and beneficial consequences of climate change on natural and human systems.

Climate Variability: Climate variability refers to variations in the mean state of the climate and other statistics (such as standard deviations, the occurrence of extremes, etc.) on all temporal and spatial scales beyond that of individual weather events.

Coastal-dependent development or use: any development or use which requires a site on, or adjacent to, the sea to be able to function at all (from Public Resources Code Section 30101).

Coastal-related development: any use that is dependent on a coastal-dependent development or use (from Public Resources Code Section 30101.3).

Ecosystem-Based Management: Ecosystem-Based Management (EBM) is an integrated approach to resource management that considers the entire ecosystem, including humans, and the elements that are integral to ecosystem functions (National Ocean Council 2011).

Emissions Scenarios: Scenarios representing alternative rates of global Green House Gas (GHG) emissions growth, which are dependent on rates of economic growth, the success of emission reduction strategies, and rates of clean technology development and diffusion, among other factors (Bedsworth and Hanak, 2008).

Environmentally sensitive area: any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments (from Public Resources Code Section 30107.5).

Erosion: the wearing away of land by natural forces. On a beach, the carrying away of beach material by wave action, currents or the wind.

Eustatic: refers to worldwide changes in sea level.

Greenhouse gases: Gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and emit long-wavelength radiation are essential to maintaining the temperatures of the Earth in habitable ranges. The most common greenhouse gases are water vapor, carbon dioxide, methane, ozone and nitrous oxides. Carbon dioxide is the major anthropogenic greenhouse gas and all greenhouse gases are often quantified collectively by their carbon dioxide equivalency, or the amount of CO2 that would have the same global warming potential (GWP), when measured over a specified time period (modified from Wikipedia).

Local coastal program: a local government's (a) land use plans,(b) zoning ordinances, (c) zoning district maps, and (d) within sensitive coastal resources areas, other implementing actions, which, when taken together, meet the requirements of, and implement the provisions and policies of, this division at the local level (from Public Resources Code Section 30108.6).

Mean Sea Level: Mean sea level is normally defined as the average relative sea level over a period, such as a month or a year, long enough to average out transients such as waves and tides. Relative sea level is sea level measured by a tide gauge with respect to the land upon which it is situated. See Sea level change/sea-level rise.

Mitigation (As used in climate science): A set of policies and programs designed to reduce emissions of greenhouse gases (From Luers and Moser, 2006).

Mitigation (As used in resource management): projects or programs intended to offset known impacts to an existing historic or natural resource such as a stream, wetland, endangered species, or archeological site.

Monitoring: systematic collection of physical, biological, or economic data or a combination of these data on a project in order to make decisions regarding project operation or to evaluate project performance.

Permit: any license, certificate, approval, or other entitlement for use granted or denied by any public agency which is subject to the provisions of this division (From Public Resources Code Section 30110).

Potential Impacts: All impacts that may occur given a projected change in climate, without considering adaptation.

Public Trust Lands: Public Trust lands shall be defined as all lands subject to the Common Law Public Trust for commerce, navigation, fisheries, recreation, and other public purposes. Public Trust Lands include tidelands, submerged lands, the beds of navigable lakes and rivers, and historic tidelands and submerged lands that are presently filled or reclaimed and which were subject to the Public Trust at any time. (From Public Resources Code 13577; see **tidelands** and **submerged lands**.)

Radiative forcing: As used by the IPCC, “Radiative forcing is a measure of the influence a factor has in altering the balance of incoming and outgoing energy in the Earth-atmosphere system and is an index of the importance of the factor as a potential climate change mechanism.

In this report radiative forcing values are for changes relative to preindustrial conditions defined at 1750 and are expressed in Watts per square meter (W/m^2)" (IPCC (2007) Climate Change Synthesis Report; http://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr.pdf).

Risk: is the possibility of interaction of physically defined hazards with the exposed systems. Risk is commonly considered to be the combination of the likelihood of an event and its consequences – i.e., risk equals the probability of climate hazard occurring multiplied the consequences a given system may experience (UNDP 2005).

Sea level: the height of the ocean relative to land; tides, wind, atmospheric pressure changes, heating, cooling, and other factors cause sea-level changes.

Sea level change/ sea-level rise: Sea level can change, both globally and locally, due to (i) changes in the shape of the ocean basins, (ii) changes in the total mass of water and (iii) changes in water density. Factors leading to sea-level rise under global warming include both increases in the total mass of water from the melting of land-based snow and ice, and changes in water density from an increase in ocean water temperatures and salinity changes. Relative sea-level rise occurs where there is a local increase in the level of the ocean relative to the land, which might be due to ocean rise and/or land level subsidence. See also Mean Sea Level, Thermal expansion (From IPCC 2007).

Sea-level rise impact: An effect of sea-level rise on the structure or function of a system (Pew Center on Global Climate Change 2007).

Sediment: grains of soil, sand, or rock that have been transported from one location and deposited at another.

Sediment Management: is the system-based approach to the management of coastal, nearshore and estuarine sediments through activities that affect the transport, removal and deposition of sediment to achieve balanced and sustainable solutions to sediment related needs.

Sensitivity: The degree to which a system is affected, either adversely or beneficially, by climate-related stimuli. The effect may be direct (e.g., a change in crop yield in response to a change in the mean, range, or variability of temperature) or indirect (e.g., climatic or non-climatic stressors may cause people to be more sensitive to additional extreme conditions from climate change than they would be in the absence of these stressors).

Shore protection: structures or sand placed at or on the shore to reduce or eliminate upland damage from wave action or flooding during storms.

Still water level: The elevation that the surface of the water would assume if all wave action were absent.

Storm surge: A rise above normal water level on the open coast due to the action of wind stress on the water surface. Storm surge resulting from a hurricane also includes the rise in level due to atmospheric pressure reduction as well as that due to wind stress.

Subsidence: Sinking or downwarping of a part of the earth's surface; can result from seismic activity, changes in loadings on the earth's surface, fluid extraction, or soil settlement.

Tectonic: related to the earth's surface.

Tidal prism: the total amount of water that flows into a harbor or estuary or out again with movement of the tide, excluding any freshwater flow.

Tidal range: difference between consecutive high and low (of higher high and lower low) waters.

Tidelands: Tidelands shall be defined as lands which are located between the lines of mean high tide and mean low tide (from Public Resources Code section 13577; see **Public Trust Lands**).

Tsunami: a long period wave, or seismic sea wave, caused by an underwater disturbance such as a volcanic eruption or earthquake. Commonly misnamed a "Tidal Wave."

Vulnerability: the extent to which a species, habitat, ecosystem, or human system is susceptible to harm from climate change impacts. More specifically, the degree to which a system is exposed to, susceptible to, and unable to cope with, the adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, as well as of non-climatic characteristics of the system, including its sensitivity, and its coping and adaptive capacity.

Vulnerability Assessment: A practice that identifies who and what is exposed and sensitive to change and how able a given system is to cope with extremes and change. A vulnerability assessment considers the factors that expose and make people or the environment susceptible to harm and accesses to natural and financial resources available to cope and adapt, including the ability to self-protect, external coping mechanisms, support networks, and so on (Tompkins et al. 2005).

Wave: a ridge, deformation, or undulation of the surface of a liquid. On the ocean, most waves are generated by wind and are often referred to as wind waves.

Wave height: the vertical distance from a wave trough to crest.

Wave length (wavelength): the horizontal distance between successive crests or between successive troughs of waves.

Wave period: the time for a wave crest to traverse a distance equal to one wavelength, which is the time for two successive wave crests to pass a fixed point.

Wave run-up: the distance or extent that water from a breaking wave will extend up a beach or structure.